ENVIRONMENTAL ASSESSMENT

Nestucca Culvert Replacements or Removal for Fish Passage

Environmental Assessment Number OR-086-03-04
March 17, 2004

USDI Bureau of Land Management
Oregon State Office
Salem District
Tillamook Resource Area
Tillamook and Yamhill Counties, Oregon

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Abstract: The Bureau of Land Management proposes to improve fish passage at seven stream crossings to expand fish distribution and utilization of more than five miles of suitable habitat in the Upper Nestucca River Watershed. The action would occur on federal land located in Township 2 South, Range 8 West, Section 29; Township 3 South, Range 6 West, Sections 15 and 22; Township 3 South, Range 7 West, Section 24; and Township 3 South, Range 8 West, Section 15, Willamette Meridian.

This environmental assessment discloses the predicted environmental effects of two alternatives: Alternative 1 (Proposed Action) and Alternative 2 (No Action). The Proposed Action involves the replacement or removal of seven fish barrier culverts, and the stabilization of BLM Road Number 3-8-15.3 (i.e., sidecast pullback, removal of culverts, establishment of non-drivable waterbars and blocking to vehicle traffic). The Proposed Action would be implemented as funding allowed, but no sooner than the summer of 2004.

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CHAPTER 1.0 PROJECT SCOPE

1.1 Project Location

The proposed project is located in the Upper Nestucca River Watershed, a Tier 1 Key Watershed, on federal land managed by the Tillamook Resource Area, Salem District, BLM (Bureau of Land Management). The project area is within Township 2 South, Range 8 West, Section 29, Township 3 South, Range 6 West, Sections 15 and 22, Township 3 South, Range 7 West, Section 24, Township 3 South, Range 8 West, Section 15, Willamette Meridian in Tillamook and Yamhill Counties, Oregon (Figure 1).

The proposed project is located on O&C (Oregon and California) revested railroad lands and in the Riparian Reserve, Late-Successional Reserve and Adaptive Management Area land use allocations as identified in the RMP (*Salem District Record of Decision and Resource Management Plan*), May 1995.

1.2 Purpose of and Need for Action

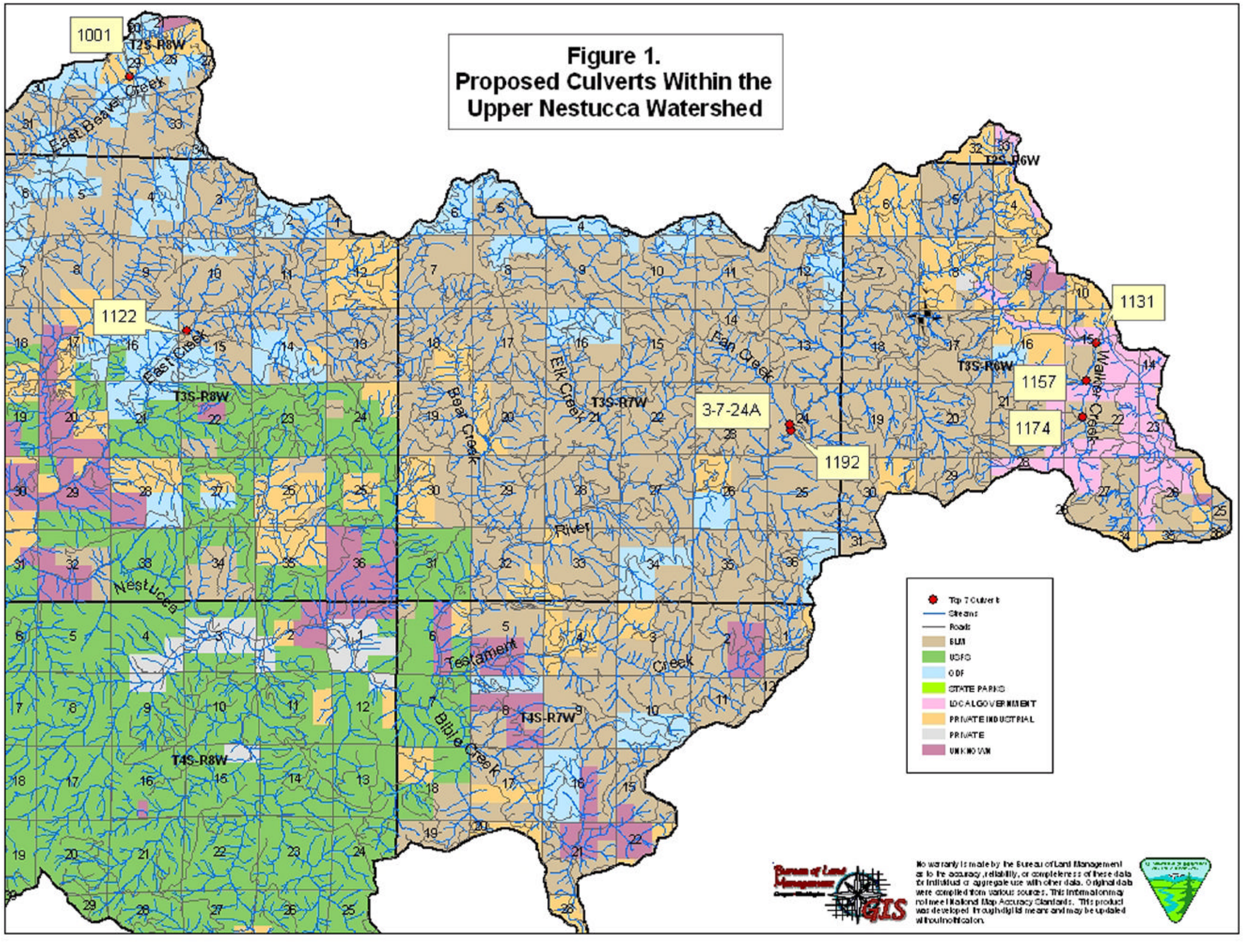
Data collected in 2002 by the BLM demonstrates that seven culverts identified in Figure 1 present partial barriers to fish passage. Three of these culverts (i.e., #1122, 3-7-24A and #1001) are at high risk for failure. In addition, culvert #1122 is located on the East Creek Road which has been identified for stabilization.

The purpose for the proposed action is to improve fish passage to expand fish distribution and utilization of over five miles of suitable habitat in the Upper Nestucca River Watershed, as well as reduce the risk of culvert failure.

Project objectives include:

- Provide and maintain fish passage at road crossings of existing and potential fish bearing streams (RMP, pp. 11, 63)
- Improve existing stream crossings such as culverts determined to pose a substantial risk to riparian conditions e.g., crossing failure resulting in massive sediment inputs, channel scour and streamflow diversion (RMP, pp. 11, 63)
- Rehabilitate and protect at-risk fish stocks and their habitat (RMP p. 27)
- Remove unnatural obstructions that interfere with the upstream and downstream movements of adult and juvenile salmonids (*Nestucca Watershed Analysis*, p. 61)
- Properly size replacement crossing structures to withstand at least 100-year flood events (RMP, pp. 11, 63)
- Manage roads to meet the Aquatic Conservation Strategy (*Nestucca Watershed Analysis*, pp. 62, Appendix C-5-3 and RMP, pp. 11, 62)

Figure 1.
Proposed Culverts Within the Upper Nestucca Watershed



The proposed action described in Chapter 2.0 was specifically designed to achieve the objectives previously listed.

1.3 Conformance with Land Use Plans, Policies and Programs

The proposed action is in conformance with the *Salem District Record of Decision and Resource Management Plan*, May 1995 (pp. 5-7[1], 14, 18-20, 27-28, 62-64, Appendix C: Section II Roads and Section IV Fish Habitat Improvement Projects) and tiers to the FEIS (*Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*), September 1994.

The proposed action is also in conformance with the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl,* April 1994*; Nestucca Watershed Analysis,* October 1994; *Northern Coast Adaptive Management Area Guide*, January 1997; *Late-Successional Reserve Assessment for Oregon's Northern Coast Range Adaptive Management Area*, January 1998; *Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines,* January, 2001; *Implementation of 2001 Survey and Manage Annual Species Review,* BLM-IM No. OR-2002-064, June 2002; *Implementation of 2002 Survey and Manage Annual Species Review,* BLM-IM No. OR-2003-050, March 2003; *Implementation of 2003 Survey and Manage Annual Species Review,* BLM-IM No. OR-2004-034, December 2003; *Delineation and Management of Reserve Pair Areas within Oregon's Northern Coast Range Adaptive Management Area* (June 2000); and the Oregon Coastal Management Program.

1.4 Permits and Approvals Required

The following permits and approvals are required prior to project implementation:

- Army Corps of Engineers Section 404 Permit
- Division of State Lands Removal-Fill Permit
- NOAA Fisheries electrofishing scientific take authorization
- Oregon Department of Fish & Wildlife review
- County Planner review
- Oregon Parks and Recreation Department review

[1] The components of the Aquatic Conservation Strategy include Riparian Reserves, Key Watersheds, Watershed Analysis and Watershed Restoration. The proposed action is located within a Tier 1 Key Watershed for which a watershed analysis was completed in October 1994. The WA (*Nestucca Watershed Analysis*) identified numerous watershed restoration opportunities for which some have been incorporated into the proposed action, including replacing culverts that inhibit fish passage, replacing decaying culverts, and stabilizing roads (WA, p.62 and Appendix C-5.3). The proposed action is consistent with the management direction for Riparian Reserves, which include actions such as designing structures to accommodate a 100-year flood and providing fish passage (RMP, p. 62-63). Although the proposed action will have short-term negative impacts at the site-scale, the actions would move the system towards the desired future condition at a watershed-scale (Chapter 3 and WA pp. 61-62). As such, the proposed action is consistent with the Aquatic Conservation Strategy.

- Oregon Water Resources Department water withdrawal authorization
- Right-of-way to remove culvert #1131, construct bridge abutments, and place riprap protection around abutments

1.5 Decision to be Made

The Tillamook Field Manager is the official responsible for deciding whether or not to prepare an environmental impact statement, and whether to approve the culvert replacement, culvert removal and road stabilization as approved, not at all, or to some other extent.

CHAPTER 2.0 ALTERNATIVES

Since there were no unresolved conflicts concerning alternative uses of available resources identified during public scoping or by the interdisciplinary team, there was no procedural requirement to develop additional action alternatives (Appendix 1). As such, the alternatives that will be analyzed in detail in this environmental assessment include the "proposed action" and "no action" alternatives.

2.1 Alternative 1 (Proposed Action)

The proposed action consists of the replacement or removal of seven fish barrier culverts, and the stabilization of the East Creek Road (Table 1). Road stabilization actions would consist of removal of up to an additional 10 culverts (seven of the culverts are on live streams and three are cross drains), sidecast pullback, establishment of non-drivable waterbars and blocking to vehicle traffic. Project design features include BMPs (Best Management Practices) contained in Appendix C[2] of the RMP; Terms and Conditions of the Biological Opinion[3]; and stipulations of the required permits and authorizations.

Table 1. Proposed Culvert Replacements, Culvert Removals and Road Stabilization.

Culvert Number	Township, Range, Section	Stream	Proposed Action	Fish Species	Miles of Spawning & Rearing Habitat Expanded
1001	2S–8W-28	East Beaver Ck	Countersunk Pipe Arch[1]	Coho Steelhead Cutthroat	0.50

[2] BMPs include, but are not limited to, seeding and/or planting disturbed areas with native species in order to avoid erosion and reduce the spread of noxious weeds; confining work timing in stream channels in accordance with Oregon Department of Fish and Wildlife's guidance (generally between July 1 and September 15) to protect fish resources; and cleaning all earth moving equipment before entering BLM administered lands to prevent the spread of noxious weed species.

[3] United States Fish and Wildlife Service's Fiscal Year 2004-2005 disturbance programmatic Biological Opinion (1-7-04-F-1113). Applicable Terms and Conditions include daily time restrictions (working from two hours after sunrise until two hours before sunset) between April 1 and September 15 for work that would result in the generation of noise above the ambient level and scheduling work to occur as late in the nesting season (after August 5th) as is operationally feasible.

Table 1. Proposed Culvert Replacements, Culvert Removals and Road Stabilization.					
Culvert Number	**Township, Range, Section**	**Stream**	**Proposed Action**	**Fish Species**	**Miles of Spawning & Rearing Habitat Expanded**
1131	3S-6W-15	Nestucca River	Bridge (bat box or space cast)	Coho Steelhead Cutthroat	0.50
1192	3S-7W-24	Fan Ck	Open-Bottom Arch[2]	Coho Steelhead Cutthroat	0.25
3-7-24A	3S-7W-24	Fan Ck	Countersunk Pipe Arch[1]	Coho Steelhead Cutthroat	0.50
1122	3S-8W-15	East Ck	Permanent removal at site, addition of large boulders in stream channel to control head cutting, and stabilizing[3] 2.4 miles of road with removal of 10 additional culverts	Coho Steelhead Cutthroat Chinook	2.20
1157	3S-6W-15	Walker Ck	Corrugated Metal Box	Coho Steelhead Cutthroat	0.50
1174	3S-6W-22	Walker Ck	Corrugated Metal Box	Coho Steelhead Cutthroat	1.20
				TOTAL MILES	**5.65**

[1] Culvert would be installed to provide natural bottom substrates.

[2] Depending on a sub-surface geotechnical investigation planned in 2004/2005 (budget dependent), an open-bottom arch culvert may not be appropriate. In such a case, a bridge would be the proposed culvert replacement.

[3] East Creek Road (BLM road number 3-8-15.3) was analyzed for stabilization via establishment of drivable waterbars within the *Coastal Road Stabilization and Watershed Restoration, and Storm-Damage Road Repair Projects* Environmental Assessment (OR-086-OO-04). However, this project proposes to stabilize the East Creek Road by removing culverts, sidecast pullback, establishing non-drivable waterbars and blocking to vehicle traffic.

At some of the sites trees, generally alders, up to approximately 40- or 50-years-old will need to be cut. Most of these trees would be retained on-site to augment CWD (coarse woody debris) levels, although some may be sold as firewood.

Temporary road closures would occur to facilitate culvert replacement and traffic detoured as appropriate. Additionally, equipment access trails would likely be required at two of the sites, 3-7-24A and #1122.

Waste material from road fill removal over culverts and sidecast pullback would be disposed of in approved, stable waste disposal sites, in locations away from streams and wetlands, where there is minimal potential for erosion or mass wasting to occur. In general, this would be on roadbeds, quarries, against cut banks, or on landings close to the location where the waste material is being removed. No waste would be disposed of on active flood plains.

The proposed action would be implemented as funding allowed, but no sooner than the summer of 2004. It will take multiple field seasons to complete all of the work associated with the proposed action, but it is likely that multiple culverts will be removed or replaced within the same year.

2.2 Alternative 2 (No Action)

For this environmental assessment, the no action alternative is defined as continuing present management actions (road maintenance, monitoring of culverts and removal of debris), but would not implement the proposed culvert replacement, removal or road stabilization at this time. The local plant and animal communities would be dependent on and respond to ecological processes that would continue to occur based on the existing condition. This alternative serves to set the environmental baseline for comparing effects to the proposed action.

CHAPTER 3.0 AFFECTED ENVIRONMENT and ENVIRONMENTAL EFFECTS

In accordance with law, regulation, executive order and policy, an interdisciplinary team reviewed the elements of the human environment to determine if they would be affected by the alternatives described in Chapter 2.0 (Appendix 2). Those elements of the human environment that were determined to be affected define the scope of environmental concern. This chapter describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

For a full discussion of the physical, biological and social resources of the Salem District, refer to the FEIS. The discussion in this environmental assessment is site-specific and supplements the discussion in the FEIS.

3.1 Fish

3.1.1 Affected Environment

The Nestucca River has been designated as a Tier 1 Key Watershed in the Salem District RMP. Key watersheds serve as refuges for the purpose of maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident species.

Land ownership within the Nestucca River watershed is approximately 65% federal, 15% private industrial timber, 5% Oregon Department of Forestry, and 15% other private land. Timber harvest and associated activities are expected to continue on state and private lands. Future management actions on federal lands will be in accordance with the Northwest Forest Plan which

contains management direction to maintain or restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems, and to maintain or enhance fisheries potential.

The Nestucca River watershed contains an estimated 760 miles of perennial streams. The Nestucca Watershed analysis (1994) identified 202.8 miles (27%) of existing Coho habitat in the basin and 203.6 (27%) miles of existing Steelhead habitat.

Fish species that are found within the 5th field Nestucca Watershed are listed in Table 2. Most of these species are found within the project area with the exception of chum salmon which are only found in the lower watershed. Other species also inhabit the Nestucca River system for all or part of each year. The non-salmonid fish species vary in their habitat needs, however they all benefit from cool water, complex habitat, pools and clean spawning gravels. Quality freshwater habitat for salmonids includes cold water, pools and clean spawning gravels.

Table 2. Fish Species and Status within the 5th Field Nestucca Watershed

Common Name*	Scientific Name	Status including MSA-EFH (Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat)
Oregon Coast coho salmon	*Oncorhynchus kisutch*	MSA-EFH[4]
Oregon Coast cutthroat trout	*Oncorhynchus clarki*	Federal Candidate
Oregon Coast steelhead trout	*Oncorhynchus mykiss*	Federal Candidate
Oregon Coast chinook salmon	*Oncorhynchus tshawytscha*	MSA-EFH
Pacific Coast chum salmon	*Oncorhynchus keta*	Bureau Sensitive
Pacific lamprey	*Lampetra tridentatus*	Bureau Tracking
river lamprey	*Lampetra ayresi*	Bureau Tracking

*Other species of fish are present in the Nestucca (i.e. sculpin and shiner spp.), but they do not have Bureau or Federal Status.

[4] In the Alsea Valley Alliance vs. Evans District Court case (2001), Judge Hogan issued an Opinion that, , "The August 10, 1998 NMFS listing decision, contained at 63 Fed. Reg. 42,857, is declared unlawful and set aside as arbitrary and capricious." ONRC (Oregon Natural Resources Council) et al. subsequently appealed and requested a stay of Hogan's opinion. That stay was granted by the Ninth Circuit Court pending appeal. On February 24, 2004 the Ninth Circuit Court ruled on the appeal. Based on this ruling, the original Hogan opinion is in effect until such time as NOAA Fisheries (NMFS) proposes a new listing decision in the Federal Register which deals with hatchery coho Consequently, there is no requirement to consult under the Endangered Species Act in the Oregon Coast Coho salmon ESU.

Oregon Coast coho salmon are currently experiencing a recovery from recent historic lows. The ODFW (Oregon Department of Fish & Wildlife) prepares annual estimates of Coho populations in coastal basins and their estimate for the Nestucca basin in 2002 is 13,068 fish. That is up from an estimated low of 169 in 1998. Oregon Coast coastal cutthroat trout and Oregon Coast steelhead are both ESA candidate species. These species are showing stable population trends. The Oregon Department of Fish & Wildlife is conducting a study on the Winter Steelhead population in the Nestucca basin. In 2002 they estimated that population to be 11,500. Major impacts on populations of these species are attributed to habitat degradation, water diversions, and harvest and hatchery influence.

3.1.2 Environmental Effects

3.1.2.1 Alternative 1 (Proposed Action)

Removal or replacement of the seven fish barrier culverts would require the dewatering of the stream channel and the excavation of road fill materials, resulting in the disturbance of vegetation and soil, and mobilization of sediments into habitat occupied by Oregon coho salmon and other fish species. A small quantity of sediment from construction activities would likely enter the affected streams and increase turbidity with fine sediments accumulating in the bottoms of pools. In addition, ten more culverts would be removed during the East Creek road stabilization. Three of these culverts are cross drains and would have no effect on aquatic species. The other seven are on live streams and would result in impacts commensurate with a typical culvert removal as previously described.

The duration of sediment inputs will vary from project to project. Culverts replaced with new culverts are generally accomplished with only a few days of in-channel work. Bridges require a longer time period to construct and have the potential to have sediment inputs to the stream over longer periods of time. A small quantity of sediment from construction activities would likely increase turbidity for up to one quarter of a mile to one mile downstream, depending on stream flows at the time. Increased levels of turbidity would be expected to last for a day or less**.** Prior experience in both instream restoration and culvert replacements have shown that generally projects exceed the state standard of 10 % over background turbidity, however rarely do turbidity samples 100 feet downstream reach a level where physical effects to individual fish may occur.

Salmonids in these streams will have emerged from gravels and be mobile during the ODFW instream work period when these culverts would be replaced or removed. The effects of in-channel work are anticipated to cause a range of effects from active feeding to aversion as the sediment moves downstream. There is the potential of mortality for a few individuals directly in the project area by either mechanical damage or in the required removal process (electrofishing).

After a culvert is replaced or removed, the stream will strive to establish a new grade, cutting down the stored sediment behind the culvert with each high-flow event. Sediment will enter the streams mainly during high stream flows caused by fall and winter storms. The sediment regime and routing process should return to a normal functioning condition after several large/high flow events over a course of two or three winters. Even though the portion of silt and clay is small, there may be an increase level of turbidity in comparison to the background levels for a short

distance downstream. The timing and delivery would coincide with other high levels of sediment already present during flow events in the Nestucca River drainage. Any effects are likely to be within the natural range of variability of the watershed and be short-lived.

Replacement or removal of seven of the culverts would result in the immediate direct benefit of providing passage for all fish species, at all life stages, at all stream flows. It would increase habitat for fish species. Colonization is anticipated at most of these sites during the first winter. It is anticipated that the number of rearing salmonids in these newly accessible stream segments will increase by providing better access to spawning and rearing habitat.

In addition, replacement or removal of culverts would minimize disruption of natural hydrologic flow pathways, disperse stored material (mostly favorably sized sand and gravel for fish) downstream, and reduce risk of culvert failure.

It is expected that there would be minimal, short-term erosional effects of construction activities. After replacement or removal, stored sediment behind the culverts will pass through the stream system. Replacement of the existing structure would greatly reduce the possibility of future road fill damage and major soil movement into the adjacent streams. No or very little new compaction or displacement would be anticipated. Other than the culvert replacement, the current water quality conditions would remain the same. Hillside erosion rate and the sedimentation regime would continue at present response rates depending upon natural disturbances to vegetation and soils

These culverts could be replaced over a period of years depending on available funding. The replacements or removal may be staggered or simultaneous. Effects resulting from replacement or removal of culverts, and road stabilization would be localized to the site-scale and would not adversely affect Essential Fish Habitat.

Cumulative Effects

No adverse cumulative effects are anticipated from this action because effects are limited in space and are short-term in nature. Replacement or removal of the culverts would bring long-term benefits by minimizing the disruption of natural hydrologic flow pathways and returning stored sediment (favorably sized spawning gravels) which would otherwise have been mobilized downstream if the culvert had been properly functioning. Replacement or removal would improve existing stream crossing structure to accommodate 100-year floods, and it would improve fish passage at the road crossings. Existing population numbers of both Coho and Winter Steelhead are large enough to buffer any potential minor impacts of the project. In addition, the opening up of 5.65 miles of habitat currently blocked by impassable culverts increases the available habitat for the anadromous species. This project would not contribute to the need to list and would recover Bureau Sensitive species.

Since about 65% of the watershed is federal land managed by the BLM and Forest Service, actions taken on federal lands to restore riparian and aquatic habitat could have substantial beneficial impacts on fish species within the watershed. The BLM will likely pursue cooperative efforts with the Nestucca/Neskowin Watershed Council, private landowners, and others to implement instream habitat improvements and access improvements which would lead to improvement in aquatic habitat conditions throughout the watershed. In addition, the Oregon Plan for Salmon and Watersheds should lead to some improvement in aquatic habitat. Without pursuing aquatic restoration projects on federal lands, natural recovery of the aquatic ecosystem is expected to occur, though at a much slower pace. A century or more may be required for impacted streams within the watershed to again become properly functioning and provide the quality habitat that at-risk salmonids need to recover. Salmonids currently undergoing population pressures may not be able to maintain viable populations under the time frame associated with natural recovery of aquatic habitat. The proposed projects are designed to implement the Aquatic Conservation Strategy. Other work recently completed in the watershed including the removal of a culvert by Simpson Resource Company and a culvert replacement in the area has opened other habitat that was previously inaccessible. In the upper watershed the fish passage work being accomplished by McMinnville Water and Light at the Meadow Lake chute is integral to the work purposed for culverts # 1131, #1157 and #1174**.** Current data reflects few steelhead and no Coho in recent years have negotiated the falls at the chute, with improved passage both at the chute and the culverts mentioned above there will be approximately four miles of habitat opened up for anadromous fish use.

3.1.2.2 Alternative 2 (No Action)

This alternative would result in maintaining the existing seven culverts and BLM Road Number 3-8-15.3 as funding allowed. No short term impacts associated with construction would be experienced. Fish passage at these sites would continue to be blocked and salmonid distribution to quality habitat limited. Hydrologic pathways and the natural grade of the stream channel would continue to be disrupted.

The risk of failure for three of the seven culverts (#1122 on East Creek, #3-7-24A on Fan Creek, #1001 on East Beaver Creek) is high. A culvert failure would likely result in a large input of silt and debris at one time. This large amount would have a much higher potential of causing adverse impacts to local fish populations. This could result not only from actual losses of individuals during the failure event, but also negative impacts to fish habitat.

3.2 Recreation

3.2.1 Affected Environment

In order to replace culverts, several temporary road closures and one campground closure will occur between the months of July and September. This timeframe is considered to be the “peak” recreational use season. During these months, the Nestucca River Access road vehicular use rate averages 120 vehicles daily and the Fan Creek Campground averages 150 overnight visits per week. Other roads described in this project receive varying amounts of use, but use is minimal in comparison to that of the Nestucca River Access road. The majority of the visitor use on Walker Creek, Fan Creek, East Creek, and East Beaver Creek are from people that live in the

local commuting area, or from visitors gaining access to favored hunting locations. The upper portion of East Creek road has been previously closed to vehicular traffic, but currently receives some OHV (Off Highway Vehicle) use.

3.2.2 Environmental Effects

3.2.2.1 Alternative 1 (Proposed Action)

All temporary road closures during the replacement of the culverts would have minimal impact to recreational users for accessibility, with the exception of culvert #1192, which would cause considerable impacts to visitors to the area. The location of culvert #1192 would require the Nestucca River Access Road and Fan Creek Campground to be closed at least four months during replacement activities. The Nestucca River Access Road is a National Back Country Byway that receives, on average, 120 vehicles daily and Fan Creek campground receives approximately 150 overnight visits per week. Closure of the road and campground would hinder travel and displace campers causing additional use to dispersed/undeveloped areas. This would cause traffic to re-route to roads that are less developed for the extent of use in which they would receive.

Stabilization of BLM Road 3-8-15.3 is intended to block all vehicular traffic. Access to favored hunting areas would be limited to foot traffic.

Excluding culvert #1192, impact to recreation is considered slight since the proposed action would not take place during any major hunting seasons. Use would be primarily from individuals attempting to find the ideal hunting spot or out for a leisurely drive "off-the-beaten-path".

3.2.2.2 Alternative 2 (No Action)

Alternative 2 would cause no affect to visitation for travelers, campers and hunters as there would be no need for temporary road closures. In the event that culvert #1192 should fail, the effect to recreation would be similar to that disclosed for Alternative 1.

3.3 Soil

3.3.1 Affected Environment

Soil adjacent to roads vary considerably but are generally deep, loamy (silt loam, loam, clay loam commonly modified by a small amount of gravel), and well drained and formed in colluvium from marine volcanics or sedimentary rock. Soils in the vicinity of culvert #1131 on the upper Nestucca River are alluvial commonly silt loam or silty clay loam and are very poorly to moderately well drained.

3.3.2 Environmental Effects

3.3.2.1 Alternative 1 (Proposed Action)

Most ground disturbing activities would occur on existing road prisms. The road surface is composed of compacted mineral subsoil and rock and gravel used in the road bed construction; the fill slope consist of a mixture of road gravel, surface mineral soil and subsoil; the cut slope the top soil has been removed.

Equipment access from main roads down to the stream would require the development of temporary access trails, primarily across fill slopes. It is likely that a short access trail would be constructed at #1122 on East Creek and at #1192 on lower Fan Creek. All exposed soils would be seeded with native plants to reduce the potential for soil erosion and noxious/invasive weed growth. Soil exposure is not expected to persist for more than one to three years before full vegetative cover is re-established. There would be a potential for some increased surface soil erosion mainly during the first year originating from exposed soil where culverts are removed or replaced and temporary access trails constructed.

Waste material from culvert removal would be placed on approved stable sites where there is minimal risk of erosion, mass wasting or sediment delivery to streams. It is expected that most waste material would be placed on existing roads and against road cut banks. Most of the waste material would probably be placed on existing road beds, quarries, and landings.

In conclusion, given the scope of the project, the proposed action is anticipated to have minimal adverse impact to soil productivity. Most ground disturbing activities would occur on existing roads. These areas were removed from the timber productivity base at the time the roads were constructed. The total affected area outside of existing road is expected to be less than ½ acre. These areas would be partially restored by ripping and replanting. Vegetation should re-establish rapidly with seeding. The amount of erosion should be small and would occur mainly during the first year.

Cumulative Effects

Given the scope of the project (most ground disturbing activities would occur on existing road prisms; total affected outside existing road prisms is expected to be less than ½ acre; and minimal loss in soil productivity is expected), the proposed action is anticipated to have minimal cumulative effects.

3.3.2.2 Alternative 2 (No Action)

Since no ground disturbing activities would be implemented, there would be no direct or indirect effects to soils including loss in soil productivity. Past disturbance would continue to affect soil conditions. The current soil processes would continue. Soils would gradually recover their porosity and productivity until the next major disturbance such as fire.

3.4 Water

3.4.1 Affected Environment

Beneficial Uses

The beneficial uses of water in the Nestucca Basin are listed in the Oregon Administrative Rules (OAR 340-41-442) and are summarized in Table 3. Table 4 summarizes the streams within the project area identified as water quality limited by ODEQ (Oregon Department of Environmental Quality) in the 2002 list of water quality limited streams (303(d) list).

Table 3. Beneficial Uses. This table summarizes the beneficial use of a stream and its distance from the project area.

Beneficial Use	Data Source	Stream Name	Upstream Culvert Sites	Distance from Project Action
Resident Fish	BLM	All project streams	All culverts sites	Present
Anadromous Fish (Listed)	BLM	E. Beaver Ck. Nestucca R. Fan Ck. Fan Ck. East Ck. Walker Ck. Walker Ck.	1001 1131 1192 3-7-24A 1122 1157 1174	Present 2.3 miles Present 500 feet Present 2.8 miles 3.4 miles
Municipal Use	OWRD*	All project streams	All culvert sites	>10 miles**
Municipal Public Watershed (MPS)	BLM	E. Beaver Ck. Walker Ck. All other project streams	1001 1122, 1157 All other culverts	Within Beaver W.D.-01 MPS boundary Within McMinnville-W MPS boundary Outside MPS boundaries
Domestic Use	OWRD*	E. Beaver Ck. All other project streams	1001 All other culvert sites	7.9 miles >10 miles

* OWRD = Oregon Water Resource Department

** Note that Culvert #1001 is about 12.6 miles upstream of the municipal water intake.

Table 4. Listed Waterbodies and TMDLs* This table summarizes the 303(d) listed streams within the project area.

Stream Name/ Parameter	River Mile	Season/ Criteria	Comments
East Beaver Ck.			
Sedimentation	0 to 34.2 (Mouth to headwaters)	Year Around/ Narrative	TMDL Approved
Habitat Modification	0 to 34.2 (Mouth to headwaters)	Year Around/Narrative	

Table 4. Listed Waterbodies and TMDLs* This table summarizes the 303(d) listed streams within the project area.			
Stream Name/ Parameter	**River Mile**	**Season/ Criteria**	**Comments**
Nestucca R.			
Temperature	0 to 28.9 (Mouth to Powder Ck.)	Summer/ Rearing 64 F	TMDL Approved, (60.8 F proposed)
Bacteria	0 to 3.2 (Bay)	Year Around/ Fecal Coliform	TMDL Approved
Dissolved Oxygen	0 to 28.9 (Mouth to Powder Ck.)	Sept. 15 - May 31/ (DO)	
Flow Modification	0 to 28.9 (Mouth to Powder Ck.)	Year Around/ Narrative	
Habitat Modification	28.9 to Headwaters (Powder Ck. to Headwaters)		
Sediment	28.9 to Headwaters (Powder Ck. to Headwaters)	Summer	

*Source- Oregon's 2002 303(d) List and Nestucca Bay Watershed Total Maximum Daily Load (TMDL) 2002 Report, Oregon Department of Environmental Quality

Project Area Climate

Project sites in the Nestucca watershed receive approximately 80-110 inches of rain annually. Both areas have a mean 2-year precipitation event of approximately 5 inches in a 24-hour period. Much of the watershed lies within a transient snow zone. In most years, at elevations above 1500 feet, snow remains for short periods and may be subject to ROS (rain-on-snow events) (USDI 1995). Overlapping areas between high intensity rainfall and high ROS are particularly vulnerable to extreme storm events and may lead to flooding (USDI 1996). Most, if not all, of the proposed projects lay outside the ROS zone at lower elevations, either within or immediately adjacent to stream valleys. The potential influence of ROS in the Nestucca is minimal and all culverts to be replaced for this project would be sized to stream bankfull widths, larger than what would be required to pass a 100-year storm event.

3.4.2 Environmental Effects

3.4.2.1 Alternative 1 (Proposed Action)

General Culvert Replacement

The alternative incorporates a number of design features to minimize the adverse effects on water quality both on-site and down stream. Implementation of the alternative, however, would result in a short-term increase in localized channel and streambank disturbance. A small amount of vegetation and soil would be disturbed when the culverts are being removed and replaced.

Shrubs and trees along the stream may be cut and excavated to access each site. Small quantities of sediment from construction activities would likely enter streams and potentially increase turbidity for one quarter of a mile to one mile downstream, depending on stream flows at the time. Increased levels of turbidity would be expected to last for a day or less. Following culvert replacement, the streams will strive to establish a new grade, cutting down the sediment behind the culvert with each high-flow event. Sediment will enter the streams mainly during high stream flows caused by fall and winter storm events. The sediment regime and routing process should return to a normal functioning condition after several large/high flow events over a course of two to three winters.

Some sediment may enter stream channels because of heavy equipment use and disturbance of soils, particularly during culvert replacement actions. No fueling of chainsaws would be done within 200 feet of streams unless it is done on the road. Short-term effects such as localized increases in fine sediment in certain stream reaches may occur. However, effects are unlikely to be prolonged, result in substantial changes in substrate composition, or decrease growth or survival of freshwater life stages of fish species. Streambanks may be disturbed when culverts are upgraded or replaced. Streambank vegetation may need to be removed from the work site causing streambanks to be temporarily exposed to streamflow until new vegetation is reestablished. Generation of sediment and reduction of stream shade from these activities willbe minor. The project is likely to cause some short-term direct disturbance to water quality and channel function. Culvert replacement necessitates operating machinery in the stream channel, which can compact stream bed substrates, alter bed form and increase sedimentation in the stream system. However, any disturbance is likely to be short term and the following design features would be implemented to minimize potential effects to the hydrologic system. Construction activities would occur during low flow conditions and removal of riparian vegetation would be minimized, though the removal of occasional trees may be necessary. To minimize sedimentation downstream of the project sites, stream water would be pumped and/or piped through construction areas. The road embankment adjacent to the culvert would be armored with riprap as scour protection and disturbed surfaces would be grass seeded and planted with conifer tree species where necessary. Temporary bypasses would be removed upon project completion and the original ground contoured. Culvert removal and replacement would entail removing as few trees as necessary to complete the project. Therefore, direct affects from this project on cumulative effects to streamflow are too small to be measured with reasonable accuracy.

The proposed action is unlikely to affect water temperature. Only a small amount of vegetation would be removed, constituting a very small portion of the stream side influence zone and direct shade of the streams.

Since the proposed actions are not unlikely to result in any measurable increase in stream temperature or sedimentation, nor would it place large amounts of fine organics in the stream channels, other water quality parameters (DO, pH, conductivity) are unlikely to be affected by these projects.

Culvert replacement/upgrade could improve hydrologic connectivity of the upstream reach above the culvert with the downstream reach below. Undersized culverts cause aggradations of substrate material upstream of culvert location and result in degradation downstream. Erosion is typical in such locations and often undersized culverts are prone to plugging. When the culvert plugs with debris in a storm event there is potential for delivery of large amounts of sediment and maybe an entire road fill into the stream. If projects are successfully implemented, substrate quality should actually improve over time, because chronic sediment sources would likely be corrected.

In the long term, the replaced culverts are expected to have improved performance and hydrologic function, compared to the existing worn culverts. Because the new culvert widths would be sized at full bank flows, they are not expected to greatly impede channel function (channel shape and streamflow migration). Potential effects that may occur from the temporary bypass construction include, short term increases in sedimentation, alteration of the natural flow path for a short period of time, and the removal of additional streamside vegetation (which may reduce bank stability). Over the long term, the action would likely slow stream velocities, increase the retention of channel substrates, and add channel complexity.

Road Stabilization

Activities associated with road stabilization may cause short-term disturbance to water quality and channel function. During culvert removal, stream bed restoration work increases stream sedimentation and resulting turbidity can be expected as equipment is operating in the stream channel. However, such increases are likely to be of local extent and short duration. Construction would occur under minimal flow conditions and sediment increases are not expected to significantly exceed current levels (i.e. are unlikely to be measurable upon project completion). Replacing/installing drain dips, ripping, blocking, and felling alders into the roadbed are not likely to significantly alter water quality or channel function. BMPs would be implemented to minimize any potential sedimentation into stream channels from these activities. In the long term, road decommissioning is likely to help restore channel function and improve water quality. Culvert removal and drain dip installation would help restore natural flow paths. Ripping, stabilizing, and felling alders into the roadbed are likely to reduce runoff channeling, thereby reducing the potential for soil erosion and sedimentation into streams.

Cumulative Effects

A cumulative effects analysis was done to determine the effects of known and anticipated activities on water quality in the Nestucca River. The scale of the analysis is the entire Nestucca watershed, which encompasses approximately 163,000 acres. It is assumed that activities on private and other government lands would be done in compliance with applicable county, state, and federal laws and regulations, such as the Oregon Forest Practices Act and the federal Clean Water Act.

The anticipated cumulative effects to water quality from the proposed action (Alternative 1) would be a short-term increase in sediment and turbidity during and following (two to three winters) culvert replacements and road decommissioning. In addition, potential effects resulting

from culvert replacement and road decommission would be mitigated to reduce the potential for measurable sediment delivery to streams, by implementing BMPs. There will be no long term degradation of water quality indicators as a result of this action; therefore there will be no cumulative effects on water quality.

3.4.2.2 Alternative 2 (No Action)

Under the No Action alternative the existing water quality conditions, stream flows, and channel conditions at the project sites would continue their current trends as described in the Nestucca Watershed Analysis. Worn culverts #1122, 3-7-24A, and 1001 would continue to deteriorate, increasing the potential for erosion and eventual failure. Roads would continue to further intercept natural flow paths and contribute sediment from vehicular use (wear and tear).

3.5 Wildlife

3.5.1 Affected Environment

Marbled Murrelet (ESA - Threatened)

All of the project areas are within designated critical habitat for the marbled murrelet (USDI 1996). Although no potentially suitable murrelet nest trees were identified within the immediate vicinity of the proposed action areas, unsurveyed suitable murrelet habitat is located within 0.25 miles of all of the project areas. The closest known occupied murrelet site is approximately 1.5 miles from the East Creek and East Beaver Creek project sites.

Northern Spotted Owl (ESA - Threatened)

All of the project areas are within designated critical habitat for the spotted owl (USDI 1992). Suitable spotted owl habitat is located within 0.25 miles of all of the project areas. There are no known occupied spotted owl sites within the vicinity of the proposed action areas; the closest known occupied spotted owl site is approximately 1.25 miles from the East Creek project site.

One of the proposed project areas, the East Creek culvert removal, as well as the associated road to be decommissioned, is located within a spotted owl RPA (Reserve Pair Area).

Northern Bald Eagle (ESA - Threatened)

Bald eagles generally nest and/or roost within mature forest stands within one mile of a large major river or lake, or within 0.5 mile of a major tributary. Suitable eagle habitat is located within 0.25 miles (0.5 miles sight distance) of the project areas.

McGuire Reservoir (currently up to approximately 138 acres in size), is located from approximately 0.25 to 0.75 miles from three of the culverts to be replaced or removed; the dam at McGuire Reservoir has recently been raised to increase the water holding capacity and thus the potential size of the reservoir. After the dam raising project is complete the reservoir will range in size up to about 260 acres. Haskins Reservoir (approximately 20 to 25 acres in size) is located about 2.0 miles northeast of the nearest project area. The presence of these reservoirs would seemingly enhance the quality of bald eagle habitat within the higher elevations of the Coast Range; however, eagles are rarely seen within the upper elevations of the Coast Range Mountains or in association with these reservoirs.

On the west side of the coast range summit, eagles are occasionally seen foraging along the Nestucca River, especially during the late fall and winter months. These sightings are generally lower in the drainage; foraging eagles are rarely seen along the Nestucca River, or generally within the Nestucca drainage at points east of the Elk Creek and Nestucca River confluence, where the river classification changes from a 5th to 6th order stream. Although eagles are not commonly sighted near the proposed project sites, occasional dispersed eagle usage (most likely roosting or resting) may occur throughout the Nestucca drainage or near the project areas where suitable eagle habitat is present. This occasional, dispersed eagle usage can occur throughout the year but most commonly would be expected during the late fall or winter months.

The nearest known bald eagle nest site is historic in nature and located along Elk Creek about four miles west of the nearest proposed culvert project site. It is unlikely there are any undiscovered bald eagle nests within the vicinity of the proposed project areas. This is due to the fact that the majority of the project sites are in areas frequented by the general public and/or personnel of various agencies or companies making the existence of an unidentified nest very unlikely.

Harlequin Duck (Bureau Assessment)

The harlequin duck breeds on rocky, swift flowing rivers from the Rocky Mountains to the Coast Range of Oregon. Harlequins spend much of their time in riffles and glides except when rearing very young ducklings, when they spend time in the slower pool water. The female is the only brooding parent with the male leaving for the coast soon after nest initiation. The female begins moving the young down river within a few weeks after hatching in late May to mid-June. It is estimated that by late August the female and the brood are in the vicinity of the estuary.

The harlequin duck was not known to breed in the Oregon Coast Range until a female with young was identified in the Nestucca River in July of 1994. Since then there has been documented breeding behavior (females with young) during several breeding seasons. In 2003, a female with young was observed in the mainstem of the Nestucca River approximately 300 yards from one of culvert project sites at Fan Creek; this is in the vicinity of the uppermost reach where harlequin presence has been noted.

Bats

The NWFP and Salem District RMP identify five species of bats that would benefit from additional habitat protection. Four of these five species have potential of being located within or near the proposed action areas. These species include the fringed myotis, long-eared myotis, long-legged myotis, and the silver-haired bat. All of these bat species are known to inhabit immature coniferous forest and may forage near riparian areas, open areas, and along forest edges while utilizing large hollow trees for roosting, hibernating, and maternity colonies. There are no known bat roosting or hibernaculum sites within the project area.

In addition to the bat species identified within the NWFP, one species of bat, Townsend's big-eared bat, is covered by the Bureau's Special Status Species Policy. Townsend's big-eared bats are seldom abundant but are known to occupy a variety of habitats. In western Oregon, these bats are associated with coniferous forests, but they are also considered characteristic dwellers of caves, abandoned mines, and buildings. No caves, abandoned mines or buildings are known to be located within the vicinity of the proposed action. Some of the more open forested and riparian habitats within and near the project action areas could function as foraging habitat.

3.5.2 Environmental Effects

3.5.2.1 Alternative 1 (Proposed Action)

Marbled Murrelet

Although there are no trees potentially suitable as murrelet nest trees within the vicinity of the proposed action areas, unsurveyed suitable murrelet habitat is located within 0.25 miles of all of the project areas. Based upon this fact, it has been determined that the proposed action has potential to negatively impact the murrelet based on the potential for disturbance to nesting marbled murrelets. Work which will raise the ambient noise level during the critical nesting season (April 1 to August 5*)* is more likely to negatively impact the marbled murrelet, than work occurring during the non-critical nesting season (August 6 to September 15). All work which will raise the ambient noise level during the critical or non-critical nesting season will adhere to daily time restrictions (working from 2 hours after sunrise until 2 hours before sunset) to help minimize this potential for negative impacts.

Northern Spotted Owl

All of the proposed project sites are within 0.25 miles of suitable spotted owl habitat which is currently unsurveyed. Although there are no known occupied sites within the vicinity of the proposed projects, Alternative 1 would be expected to result in the generation of noise above the ambient level within 0.25 miles of this unsurveyed suitable owl habitat during the critical and non-critical breeding periods. Based upon this fact, it has been determined that the proposed action may negatively impact the spotted owl based on the potential for disturbance. Work which will raise the ambient noise level during the critical nesting season (March 1 to July 7) is more likely to negatively impact the spotted owl than work occurring during the non-critical nesting season (July 8 to September 30).

Northern Bald Eagle

Although eagles are not commonly sighted near the proposed project sites, occasional dispersed eagle usage (most likely roosting or resting) may occur throughout the Nestucca drainage or near the project areas where suitable eagle habitat is present. This occasional, dispersed eagle usage can occur throughout the year but most commonly would be expected during the late fall or winter months. Based upon these facts, primarily the potential to disturb occasional dispersed eagles with little likelihood of nesting eagles, it has been determined that the proposed action may negatively impact the bald eagle.

Harlequin Duck

The proposed culvert project is not expected to affect harlequin ducks to a great degree. It is possible that the ducks could still be in the river in the vicinity of the Fan Creek project areas while work is commencing. Since the ducks are highly mobile by the time any work begins they will be able to avoid disturbance simply by moving away from the site. This potential for disturbance could be minimized by scheduling work to occur at the Fan Creek site as late in the breeding season as possible, preferably into or after mid-August. The fact that the ducks use most of the river for foraging while en route to the sea indicates that they are not dependant on any particular reach of the river for survival. In summary, the proposed action may cause some short term (less than a week) disturbance to female ducks with young. Impacts to the harlequin habitat are expected to be negligible. This project will not contribute to the need to elevate the level of concern for the harlequin duck.

Bats (NWFP Bats and Townsend's Big-Eared Bat)

All of these bat species are known to inhabit immature coniferous forest and may forage near riparian areas, open areas, and along forest edges while utilizing large hollow trees for roosting, hibernating, and maternity colonies. While the noted bat species of concern may forage within or near the proposed project areas, there are no negative impacts expected to result from the proposed action which would lead to the elevation of their status, including the need to list under the ESA. This is based upon the nature and scope of the proposed actions. No large trees suitable for roosting are expected to be cut and there are no other known bat roosting or hibernaculum sites within the project area - caves, mines, or abandoned wooded bridges and buildings.

There are some potentially beneficial impacts to bats associated with the implementation of the proposed action. Culvert #1131 on the Nestucca River is proposed to be replaced with a bridge which would be fitted, as appropriate, with a "bat box" to increase the possible benefits to those species of bats which will utilize such structures for roosting. All of the identified species of bats are known to utilize bridges.

Cumulative Effects

"Cumulative Effects" are the impacts on the environment that result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time (CEQ 1508.7). Cumulative effects analysis provides greater insight into understanding the current environmental factors and the likely trends that might affect the environment.

Relative to wildlife resources, the only issue(s) identified within the *Nestucca Watershed Analysis* (October 1994) with a likelihood for cumulative effects are related to factors affecting the distribution of sensitive species. These issues are related to ownership patterns and past management practices that have resulted in a high degree of forest fragmentation, small patch sizes and the associated limited amount of interior habitat. These factors can result in dispersal

problems for some species and a high degree of regional isolation. Another related issue is the general lack of late-seral habitat and/or some late-seral habitat features such as “forest legacies” including large trees, snags and down logs.

No adverse cumulative effects associated with the modification of habitat for the species of concern that utilize late-seral habitat are expected to result from the proposed projects. This is based upon the facts that the proposed action would not modify any forested stands which are currently providing late-seral habitat or negatively impact any habitat elements associated with late-seral habitat.

Less information is available on habitat altering management activities to occur on non-federal lands however, the general trend on private land is one of decreasing quantities of late-seral habitat. The majority of non-federal forestland within the affected watershed is owned by industrial timber companies and is managed for timber production on relatively short rotations. This generally precludes the development and/or maintenance of late-seral habitat. While private lands within the northern portion of the Oregon Coast Range, including the Nestucca Watershed, support some dispersal habitat for the northern spotted owl, the suitable habitat for the spotted owl, marbled murrelet and bald eagle on these lands is very limited in quantity and marginal in quality thereby not notably contributing to the viability of the species. Additionally, in most areas, second-growth forests have been or are planned to be harvested before they will attain the characteristics of older forests. Because the majority of private forestland within the vicinity of the proposed action area is managed for timber production, little spotted owl, bald eagle or murrelet suitable habitat remains on these lands. Habitat conditions on these lands are not expected to appreciably improve within the foreseeable future and the limited amount of remaining mid- and late-seral stage habitat is expected to be greatly reduced or completely removed over time.

The cumulative impacts resulting from the proposed action and the additional known projects would not be of a magnitude as to negatively impact species of concern. This is based on the following reasons: 1/ Based upon the distribution of habitat, much of the potential for cumulative impacts to wildlife species of concern result from federal actions which generally incorporate seasonal and daily time restrictions to reduce the potential of disturbance to murrelet breeding activities; 2/ The projects likely to occur within the watershed are expected to be generally separated by space and time sufficiently as to not repeatedly or continually disturb the same large blocks of late-seral stage habitat; and 3/ While it is possible that activities occurring on non-federal lands which are in proximity to species occupying federal land could create the potential for disturbance, the bulk of the mid- to late-seral stage habitat within the watershed is located on federal land in a relatively contiguous federal ownership block.

3.5.2.2 Alternative 2 (No Action)

This alternative would result in none of the proposed culvert replacement or removal projects being implemented. Three culverts proposed for replacement or removal, #1122 on East Creek and #3-7-24A on Fan Creek, and #1001 on East Beaver Creek, have been repeatedly plugged by debris during winter storms and required regular monitoring and being cleaned of debris. At a

minimum, these three culverts will continue to be regularly maintained in order to reduce the risk of total culvert failure. Even with regular monitoring and maintenance, the current condition of these culverts results in the fact that given a major storm event, eventual total failure is a distinct possibility. Given the depth of fill at these culverts, this could result in the release of large amounts of sediment and debris into the channel during periods of high flow and possibly during critical fish spawning seasons. In addition to potential impacts to fisheries resources, failure of these culverts would likely have negative impacts upon the habitat for a wide range of wildlife species, most specifically those dependent upon riparian or instream habitats such as the torrent salamander. Stabilization or rehabilitation activities could follow culvert failure.

Under the "No Action Alternative" the identified potential beneficial impacts to bats would not occur as the bridge(s) fitted with a bat box or other bat habitat (e.g., space cast) would not be installed.

As stated, in order to reduce the risk of failure under the "No Action Alternative", regular maintenance activities would be required on at least three of the culverts proposed for treatment and in the event of total failure, stabilization or rehabilitation activities could be implemented. These activities (maintenance, stabilization or rehabilitation) would likely require the use of large equipment and/or chainsaws resulting the generation of noise above the ambient level and potential disturbance to wildlife species. Depending upon the season of operation, these activities may adversely impact marbled murrelets, spotted owls and/or bald eagles; there would also be potential for disturbance to harlequin ducks within the Nestucca River associated with activities at the Fan Creek site.

3.6 Invasive, Non-Native Species

3.6.1 Affected Environment

Areas of activity during this project will be contained within or near the road prism where site disturbance previously occurred during the initial road construction project. Existing vegetation consists of grasses, forbs, hardwoods, and an occasional conifer sapling. Any ground-disturbing activity offers opportunity for the introduction of noxious weeds and/or invasive non-native plant species based on the existence of a seed source. *Cirsium vulgare, Cirsium arvensis, Hypericum perforatum, Rubus discolor, Rubus laciniatus, Senecio jacobaea, Phalaris arundinacea*, and *Cytisus scoparius* are noxious weed species commonly found within the general vicinity of the project areas.

3.6.2 Environmental Effects

3.6.2.1 Alternative 1 (Proposed Action)

All noxious weeds identified within the vicinity of the project area are designated Priority III (established infestations) on the Oregon Department of Agriculture's noxious weed list. These weed species are commonly found throughout Western Oregon tending to occupy areas of high exposure to light. Some degree of noxious weed/non-native species introduction or spread is probable as management activities occur in the project areas. Soil disturbing activities would be the most likely places for weed establishment. Project design features require seeding disturbed areas with native species that allow natural plant succession to occur, therefore reducing the

likelihood of invasion of non-native species. In time, non-native species are expected to return to low levels as native vegetation becomes established.

3.6.2.2 Alternative 2 (No Action)

No appreciable increase in noxious weeds and/or invasive non-native plant species is expected to occur at most of the project areas. Any increase that does occur should be mostly confined to culverts #1122, #3-7-24A, and #1001 because of the high likelihood of culvert failure. Without mitigation measures (i.e., introducing native plant species) any disturbance to these three sites would be subject to invasion and longer term persistence by these undesired noxious weed/non-native species therefore increasing the seed bank potential for other disturbance sites in the local vicinity.

CHAPTER 4.0 LIST OF PREPARERS

The following individuals participated on the interdisciplinary team or were consulted in the preparation of this environmental assessment:

Rachel Werner	Interdisciplinary Team Lead
Matt Walker	Fisheries Biologist
Dana Cork	Salem District Engineer
Kurt Heckeroth	Forestry Technician, Botany
Steve Bahe	Wildlife Biologist
John Casteel	Fisheries Biologist
Dennis Worrel	Soil Scientist
Kami Ellingson	Hydrologist
Debra Drake	Outdoor Recreation Planner
Ron Pace	Natural Resource Specialist, Survey and Manage Wildlife
Katrina Symons	Natural Resource Staff Administrator, NEPA
John Caruso	Forester, Cultural Resources

CHAPTER 5.0 PUBLIC INVOLVEMENT and CONSULTATION

5.1 Public Scoping and Notification

5.1.1 Tribal Governments, Adjacent Landowners, General Public, and Federal, State, County and local government offices:

Scoping consisted of mailing a letter and scoping report on July 8, 2003 to 50 potentially affected and/or interested individuals, groups, and agencies (Project Record Documents 6-8). Additionally, one article describing the proposed project was published in the McMinnville *News-Register* (Project Record Document 9). A total of two letters were received as a result of this scoping effort. All public input was assigned a number and filed within the Project Record

(Project Record Documents 10, 11). The BLM response to the comments received are contained in Appendix 3.

5.1.2 30-day public comment period

The EA and preliminary FONSI will be made available for a 30-day public review period in March 2004. Notification of the comment period will include: the publication of a legal notice in the *Headlight Herald* and *News-Register*, newspapers of Tillamook and McMinnville, Oregon, respectively; a letter to be mailed to those individuals, organizations, and agencies that have requested to be involved in the environmental planning and decision making processes; and posting on the Internet at http://www.or.blm.gov/salem/html/planning/index.htm under Environmental Assessments. Comments received in the Tillamook Resource Area Office, 4610 Third Street, Tillamook, Oregon 97141, on or before the end of the 30-day comment period will be considered in making the final decision for this project.

5.2 Consultation

5.2.1 United States Fish and Wildlife Service

In accordance with regulations pursuant to Section 7 of the Endangered Species Act of 1973, as amended, formal and/or informal consultation concerning the potential impacts of the proposed projects upon the spotted owl, marbled murrelet and bald eagle would be completed where appropriate. This would be accomplished by including the projects within the programmatic "disturbance-only" Biological Assessment(s) prepared by the interagency Level 1 Team (terrestrial subgroup) for the North Coast Province. The projects are covered by the Biological Assessment and Biological Opinion (1-7-04-F-1113) for FY (Fiscal Year) 2004 and 2005 projects. However, it is expected to take multiple field seasons to complete all of the work. Should the projects not be completed by FY 2005 but rather in a subsequent year, the remaining portions of the project would be resubmitted for inclusion in the next appropriate programmatic consultation. The proposed projects would not be implemented until consultation is completed and would incorporate the appropriate Terms and Conditions of the corresponding Biological Opinion.

5.2.2 NOAA Fisheries (National Marine Fisheries Service)

Endangered Species Act Section 7 consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat consultation is not required

APPENDIX 1

ALTERNATIVE DEVELOPMENT SUMMARY

Environmental Assessment Number OR-086-03-04

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act of 1969, as amended), Federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." The CEQ (Council on Environmental Quality) regulations for implementing the procedural provisions of NEPA states, alternatives should be "reasonable" and "provide a clear basis for choice" (40 CFR 1502.14).

In light of the direction contained in both NEPA and the CEQ Regulations, the following questions were used to 1/ identify the alternatives to be analyzed in detail in this environmental assessment that are in addition to the "proposed action" and "no action" alternatives, and 2/ document the rationale for eliminating alternatives from detailed study.

1. **Are there any unresolved conflicts concerning alternative uses of available resources?** *If yes, document and go to Question #2. If no, document rationale and stop evaluation.*

   No, there are no unresolved conflicts concerning alternative uses of available resources. There is an existing O&C right-of-way agreement (OR044763; R.W.A. S-1004) between BLM and Simpson Resource Company. When Simpson Resource Company was informed of the project, they stated that they had constructed other access to their ownership and have no need for BLM road number 3-8-15.3 on East Creek. In addition, the proposal to remove culvert #1122 was supported by Simpson Resource Company (Project Record Document 4).

   Although BLM road number 3-8-15.3 provides access to stands that have been identified for density management thinning in the *Late-Successional Reserve Implementation Report* (June 2003), access to these stands would still be available through an alternate route from the north, employing an alternate logging method or delaying the closure of this road for several years until the stands were treated.

2. **What alternatives should be considered that would lessen or eliminate the "unresolved conflicts concerning alternative uses of available resources"?** *List alternatives and go to Question #3. If no alternative is identified other than the "no action" alternative, document and stop evaluation*.

3. **Of those alternatives identified in Question #2, are there reasonable alternatives for wholly or partially satisfying the need for the proposed action?** *If so, briefly describe alternatives and go to question #4. If no, document rationale and stop evaluation.*

4. **Of those alternatives identified in Question #3, will such alternatives have meaningful differences in environmental effects?** *If so, seek line officer approval to carry alternatives forward for detailed analysis in the environmental assessment. If no, document rationale and stop evaluation.*

APPENDIX 2

ENVIRONMENTAL ELEMENTS

Environmental Assessment Number OR-086-03-04

In accordance with law, regulation, executive order and policy, the interdisciplinary team reviewed the elements of the human environment to determine if they would be affected by the alternatives described in Chapter 2 of the EA (environmental assessment). The following two tables summarize the results of that review. Those elements that are determined to be "affected" will define the scope of environmental concern, Chapter 3 of the EA.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**
Air Quality (Clean Air Act)	Not Affected	Dust created from culvert replacement, road stabilization and construction-related vehicle traffic on unpaved roads would be localized and of short duration. Particulate matter (dust) will not be of a magnitude to harm human health, affect the environment, or result in property damage. As such, the proposed action is consistent with the provisions of the Federal Clean Air Act.
Areas of Critical Environmental Concern	Not Affected	The Nestucca ACEC is located within the project area and Walker Flat ACEC is adjacent to the project area. The proposed action is in compliance with the respective Management Plans for these ACECs. Implementation of the proposed action will not affect the values for which these ACEC's were established.
Cultural, Historic, Paleontological	Not Present	There are no known cultural resource sites located within the project area (see Cultural Resource Report, Project Record Document 14, for surveys conducted for the *new* ground disturbance portion of the proposed action). Pursuant to the August 1998 protocol for managing cultural resources on lands administered by the BLM in Oregon, that portion of the proposed action that does not involve new ground disturbance is considered to be an exempt undertaking (Protocol, Appendix E, Transportation #5 and Other #13). If cultural resources are found during the implementation of the proposed action, the project may be redesigned to protect the cultural resource values present, or evaluation and mitigation procedures would be implemented based on recommendations from the District Archaeologist.
Native American Religious Concerns	Not Present	No Native American religious concerns were identified during the public scoping period.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**
Prime or Unique Farm Lands	Not Present	No prime or unique farm lands present
Flood Plains (Executive Order 11988)	Not Affected	The proposed action does not involve occupancy and modification of floodplains, and will not increase the risk of flood loss. As such, the proposed action is consistent with Executive Order 11988.
Threatened or Endangered Plant Species or Habitat	Not Affected	*Sidalcea nelsoniana* is federally listed as Threatened and is located within 1/2 mile of the Walker Flat project site. Recent monitoring of this site was completed by the Berry Botanical Gardens and BLM Botanists. The effects from the proposed fish culvert project were discussed and it was determined that no negative impacts to this population would occur. The concern would be in any change in water-table at the known site; however, the proposed action will not influence the water table and therefore will not affect the existing population.
Threatened or Endangered Wildlife Species, Habitat and/or Designated Critical Habitat	Affected (Species) Not Affected (Habitat and/or Designated Critical Habitat)	Species: The proposed action will result in the potential for disturbance to spotted owls, marbled murrelets, and bald eagles. The unit of measure is a narrative description of the potential for impacts. Design features are those contained within the Terms and Conditions of the Biological Opinion such as daily time restrictions and where feasible, scheduling projects to occur late in the breeding season(s). Habitat and/or Designated Critical Habitat: The nature and scale of the projects result in no critical elements of spotted owl, marbled murrelet, or bald eagle habitat and/or Designated Critical Habitat being impacted. (Project Record Document 15)
Threatened or Endangered Fish Species or Habitat	Not Present	In the Alsea Valley Alliance vs. Evans District Court case (2001), Judge Hogan issued an Opinion that, , "The August 10, 1998 NMFS listing decision [Oregon Coast coho salmon], contained at 63 Fed. Reg. 42,857, is declared unlawful and set aside as arbitrary and capricious." ONRC (Oregon Natural Resources Council) et al. subsequently appealed and requested a stay of Hogan's opinion. That stay was granted by the Ninth Circuit Court pending appeal. On February 24, 2004 the Ninth Circuit Court ruled on the appeal. Based on this ruling, the original Hogan opinion is in effect until such time as NOAA Fisheries (NMFS) proposes a new listing decision in the Federal Register which deals with the issue of hatchery coho.
Hazardous or Solid Wastes	Not Affected	Removed culverts will not be allowed to remain on BLM land and will become the property of the contractor. The contractor will be responsible for disposal of removed culverts in a legal manner and for payment of any fees required. The contractor will also be required to submit to the BLM proof of legal disposal.
Water Quality (Surface and Ground)	Affected	The proposed action will result in the mobilization of sediments and the disturbance of riparian vegetation that may adversely affect water quality. The unit of measure is a narrative.

Table 1. Critical Elements of the Environment. This table lists the critical elements of the human environment (BLM Handbook 1790-1) which are subject to requirements specified in statute, regulation, or executive order and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Critical Element of the Human Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure to describe environmental impacts, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**
Wetlands (Executive Order 11990)	Not Present	The proposed action will not result in the destruction, loss or degradation of any wetland. As such, the proposed action is consistent with Executive Order 11990.
Wild and Scenic Rivers	Not Affected	The Nestucca River and Walker Creek are State-designated scenic waterways. The proposed action will not change the visual character or quality of these waterways. Although there are no Wild and Scenic Rivers within the project area, the Nestucca River has been identified as suitable for designation as a component of the National Wild and Scenic Rivers System with a tentative classification of "Recreational River Area". A "recreational river area" is defined by the Wild and Scenic Rivers Act (Public Law 90-542, as amended) to be "Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines..." The outstandingly remarkable values identified for this recreational river area include scenic, recreational, and fish. The proposed action will not impact the scenic value but will have an effect on recreation and fish (Chapter 4); however the predicted effects on these resource values will not change the tentative classification of "Recreational River Area".
Wilderness	Not Present	There are no wilderness areas present within the project area.
Invasive, Nonnative Species (Executive Order 13112)	Affected	The proposed action will result in soil disturbance which provides an opportunity for the introduction of noxious weeds and/or invasive non-native plant species. The unit of measure is a narrative.
Environmental Justice (Executive Order 12898)	Not Affected	The proposed action is not anticipated to have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**
Land Uses (right-of-ways, permits, etc)	Not Affected	There is an existing O&C right-of-way agreement (OR044763; R.W.A. S-1004) between BLM and Simpson Resource Company. When Simpson Resource Company was informed of the project, they stated that they had constructed other access to their ownership and have no need for BLM road number 3-8-15.3 on East Creek. In addition, the proposal to remove Culvert #1122 was supported by Simpson Resource Company (Project Record Document 4).
Mineral Resources	Not Present	There are no known mineral resources located in the project area.
Energy Resources	Not Present	There are no known energy resources located in the project area. The proposed action will have no effect on energy development, production, supply and/or distribution.
Fire Hazard	Not Present	There are no known fire hazards located in the project area.
Recreation	Affected	The replacement of Culvert #1192 will require the closure of the Nestucca River Access Road and Fan Creek Campground during the high use recreation period. The unit of measure is a narrative.
Rural Interface Areas	Not Present	There are no rural interface areas located in the project area.
Soils (productivity, erodibility, mass wasting, etc.)	Affected	The proposed action will result in soil disturbance that may reduce soil productivity, as well as increase the risk of erosion and mass wasting. The unit of measure is a narrative.
Visual Resources	Not Affected	The project area is located within Class I and Class IV Visual Resource Management category. The proposed action is consistent with this classification. As such, the proposed action will have no effect on the visual resources.
Municipal and Domestic Water Use	Not Affected	Three of the culverts (#1001, #1122 and #1157) are located within municipal watersheds. All of the culverts are at least 8 miles from municipal and domestic uses (Project Record, Document 13). The proposed action is not anticipated to have measurable effects on watershed hydrology and water quality (Chapter 3). As such, the proposed action will not affect water use.
Bureau Sensitive and Special Attention Plant Species or Habitat	Not Present	Because of historic site disturbance and the lack of required habitat conditions, there is no presence of listed plant species. As such, the proposed action will not affect this element of the environment.

Table 2. Other Elements of the Environment. This table lists other elements of the environment which are subject to requirements specified in law, regulation, policy, or management direction and the interdisciplinary team's predicted environmental impact per element if the alternatives described in Chapter 2 of the Environmental Assessment were implemented.

Other Elements of the Environment	**Status** **1/ Not Present** **2/ Not Affected** **3/ Affected**	**Interdisciplinary Team Remarks** **1/ If not affected, why?** **2/ If affected, develop cause/effect statement, unit of measure, and if applicable, design features not already identified in Appendix C of the RMP to reduce or avoid environmental harm**
Bureau Sensitive and Special Attention Wildlife Species or Habitat	Affected (bats, harlequin duck) Not Present or Not Affected (All other species)	Bats: The proposed action would result in beneficial impacts to bats based on the installation of a bridge which is fitted with a bat box. Harlequin Duck: The proposed action would result in potential disturbance to harlequin ducks. Design feature: If feasible, portion of project most likely to disturb Harlequin duck would be scheduled to occur late in the breeding season. The unit of measure for both the bat and harlequin duck is a narrative that describes whether the action would result in a trend toward federal listing or need to elevate the level of concern. Other Species including 6840 and Survey & Manage: Either not present or not affected by the proposed action. Surveys were conducted to protocol and no Survey and Manage mollusks, red tree voles or red tree vole nests were located. Project Record Document 12 and 15.
Fish Species with Bureau Status and Essential Fish Habitat	Affected	The proposed action will result in the mobilization of sediments into habitat occupied by several fish species with Bureau status and listed under the Magnuson-Stevens Fishery Conservation and Management Act. Additionally, there is the potential of mortality to individuals by either mechanical damage or electrofishing. The unit of measure is a narrative that describes whether the action would result in a trend toward federal listing or need to elevate the level of concern, and a narrative that describes whether there would be impacts to Essential Fish Habitat.

APPENDIX 3

PUBLIC SCOPING

Environmental Assessment Number OR-086-03-04

The public scoping and notification process is discussed in Chapter 5.1.1 of the EA (Environmental Assessment Number OR-086-03-04). Public comments (direct quotes) and BLM's (Bureau of Land Management) response to those comments are presented in this appendix.

Project Record Document 10 – DSL (Oregon Department of State Lands)

comment a: *Based on the information provided, it appears that the proposed activity would require a permit from DSL. Activities that improve fish habitat may qualify for General Authorization.*

BLM Response**:** As appropriate, a removal-fill permit will be acquired from DSL prior to project implementation (EA Chapter 1.4).

Project Record document 11 – United States Fish and Wildlife Service

comment b: *Formal consultation for the effects of disturbance associated with this type of activity for these two species is covered in the North Coast Province disturbance programmatic, which was completed on April 4, 2002 (see Biological Opinion 1-7-02-F-422). Along with the obvious benefits of this type of culvert replacement there are also some inherent risks.*

BLM Response**:** Since the proposed activity will not begin until 2004, it will be included in the 2004-2005 Biological Assessment and associated Biological Opinion (EA Chapter 5.2.1).

comment c: *It will be important to design the individual replacement projects so that the risk of headcutting is minimized. The formation of headcuts adds to sediment loading, and removes substrate needed by fish to spawn and rear effectively. Added sediment can also act as a passage barrier to fish, both through accumulation and suspension. Attempts should be made to keep turbidity to within State standards of no more than 10% increase at 100 feet from the work site.*

BLM Response: We agree that headcutting risks exist with culvert replacements and can add to sediment loading, effecting downstream spawning habitats. The individual replacement projects will be designed to minimize these risks. The effects of the proposed action on water quality are addressed in Chapter 3 of the EA.

comment d: *The Service would also suggest that natural substrate structures such as open bottom pipe arches, or buried culverts be considered for use, as they facilitate fish passage.*

BLM Response: We agree that open bottom pipe arches, or buried culverts, as well as bridges and permanent removals, facilitate fish passage. The proposed action is described in detail in Chapter 2.1 and incorporates your suggestion, as appropriate given site-specific conditions.

comment e: *The Service is also concerned at the possible spread to noxious weeds. It will be important to take steps to reduce this risk. It may be necessary to inventory weeds both at the work sites, and on the travel routes to the work sites to determine what steps need to be taken. Possible actions could include washing equipment between work sites, and seeding disturbed areas, as appropriate, in accordance with BLM policies.*

BLM Response: We recognize that disturbance sites are likely areas for noxious/exotic weeds to invade. Noxious/exotic weed monitoring and control methods have been planned. These methods will likely slow the spread of existing populations and limit new introductions. Pursuant to the Best Management Practices contained in Appendix C of the Salem District Resource Management Plan, all earth moving equipment would be cleaned and free of soil, brush, and weeds before entering BLM administered lands to prevent the spread of any noxious weed species. Additionally, disturbed areas would be seeded and/or planted with native plant species to reduce the invasion of noxious/non-native plant species. The effects of the proposed action on noxious weeds are disclosed in Chapter 3.